

### REMARKS

The applicants appreciate the Examiner's thorough examination of the application and request reexamination and reconsideration of the application in view of the preceding amendments and the following remarks.

### PRELIMINARY MATTER

As a preliminary matter, the applicants request that the Examiner consider and acknowledge the references disclosed by the applicant which were mailed on January 19, 2009 in accordance with 37 C.F.R. §1.97(c), which date was prior to the mailing of the subject Final Office Action.

The applicant further requests that the Examiner consider and acknowledge the references disclosed by the applicants together with this Response.

### THE §103(a) REJECTIONS

The Examiner rejects claims 1, 3-6, 9, 11-14, and 26 under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Pat. No. 6,420,008 to *Lewis et al.* in view of U.S. Pat. No. 6,785,144 to *Akram* and further in view of U.S. Pat. No. 6,412,701 to *Kohama et al.* The Examiner further rejects claim 10 as allegedly being unpatentable over *Lewis et al.* in view of *Akram* in view of *Kohama et al.* and further in view of U.S. Pat. No. 4,774,434 to *Bennion*.

The applicants' claim 1 recites, among other things, a flexible circuit including traces and pads on a flexible substrate, the substrate welded onto a fabric surface.

### THE LEWIS and AKRAM REFERENCES

– In sharp contrast to the applicants’ independent claim 1, *Lewis*’s sticky flexible sheet 12 is not the substrate of a flexible circuit board. And, *Lewis*’ sticky sheet is not welded.

Moreover, there is no contact between the PC board 14 and the shirt or shirt surface. *Lewis* does not teach adhering the PC board itself to the shirt, much less welding it onto the shirt. In fact, everything but *Lewis*’ PC board sticks to the shirt.

The secondary cited reference *Akram* fails to teach welding of anything, much less welding substrate of the printed circuit board to a fabric. And as noted previously, simply adding the conductive paths and circuit traces disclosed by *Akram* to *Lewis*’ PC board fails to teach the applicant’s invention which, when structured as claimed, acts as a viable improvement to the previously known garments with conductive fibers integral with the fabric or garments with rigid, bulky and uncomfortable circuit boards.

### THE KOHAMA REFERENCE

The tertiary cited reference *Kohama* teaches ways of making driver’s licenses, telephone cards and the like. As discussed below in detail, *Kohama* fails to teach the applicants’ claimed elements – missing from *Lewis* and/or *Akram* – in any event.

### Combining Kohama with Lewis and/or Akram is Improper

Preliminarily, the applicants respectfully submit that combining *Kohama* with *Lewis* and/or *Akram* is clearly the result of hindsight analysis.

In *In re Oetiker*, the Court found that “[i]t has not been shown that a person of ordinary skill, seeking to solve a problem of fastening a hose clamp, would reasonably be expected or motivated to

look to fasteners for garments”. See *In re Oetiker*, *supra*, at page 1446 (with emphasis added).

In this case, it is clear that the Examiner has not shown that a person of ordinary skill in the art of electrically active textile articles seeking to solve the problems of cutting through fabric and freedom of orientation, would reasonably be expected or motivated to look to a method of making telephone cards and drivers’ licenses.

Moreover, after finding as stated above, the *Oetiker* court held that:

The combination of elements from non-analogous sources, in a manner that reconstructs the applicant’s invention only with the benefit of hindsight, is insufficient to present a *prima facie* case of obviousness.” *In re Oetiker* at 1446.

The applicant respectfully submits that it is only with the benefit of hindsight that the applicants’ claims have been reconstructed from non-analogous sources. *Kohama* is not pertinent to either *Lewis* or *Akram* or to the applicant’s claimed invention. A *prima facie* case of obviousness has not been presented by the Examiner.

Moreover, it is improper to analyze the applicant’s claims in such a manner – i.e. essentially as something which melts. Instead, proper analysis requires that the applicant’s claims must be analyzed “as a whole”. See MPEP §2141.02 I. (THE CLAIMED INVENTION MUST BE CONSIDERED AS A WHOLE).

In addition, pending claims must be given their broadest reasonable interpretation consistent with the specification. See MPEP §2111.

It is clear from the Examiner’s rationale for combining *Kohama* with the other cited references that the Examiner has failed to consider the claims as a whole, and has failed to give the claims their broadest reasonable interpretation consistent with the specification.

Further, the references must be considered in their entirety. See MPEP §2104.02 VI (PRIOR

ART MUST BE CONSIDERED IN ITS ENTIRETY, INCLUDING DISCLOSURES THAT TEACH AWAY FROM THE CLAIMS).

The applicants respectfully submit that it is also clear from the Examiner's interpretation of *Kohama* and from the interpretation of the other cited references that the Examiner has failed to consider the references in their entirety.

As discussed further below, the cited reference *Kohama* does not add to *Lewis* or *Akram* in any event, when considered in its entirety, in order to support rejection of the applicants' claims.

*Kohama Fails to Teach the Applicants' Claimed Elements Missing From Lewis and Akram*

As noted, the applicants' claims must be considered as a whole. Moreover, it is improper to combine *Kohama* with the other cited references. To advance prosecution and better define the applicants' invention, however, the applicant has amended independent claims 1 and 26.

As amended, claim 1 recites an electrically active textile article including fabric, and a flexible circuit including traces and pads on a flexible substrate, and the substrate is welded onto the fabric surface by ultrasonic welding or radio frequency processes. At least one electronic component populates the circuit.

In contrast to the applicants' claimed structure where the substrate is welded onto the fabric surface by ultrasonic welding or radio frequency processes, *Kohama* teaches the alleged disadvantages of using ultrasonic in the so-called wedge bonding method, and *Kohama* thus teaches that ultrasonic is not utilized to form the IC module. See e.g. *Kohama* column 11, lines 30-58.

Instead, *Kohama* teaches that solder bumps, e.g. 1b or gold bumps, e.g. 1d are melted to attach a coil 2 to the chip, or that to the coil is melted to the input or output terminals. See e.g. *Kohama* column 9, lines 26-34.

Alternatively, *Kohama* also teaches hot pressing of the IC chip 1 between first and second non-woven fabric 12 and 13. See e.g. *Kohama* at column 12, lines 35-51 and Fig. 10. The method taught by *Kohama*'s Figs. 11A-11D (and Figs. 12A-12D) similarly uses hot pressing in contrast to the applicants' claims. *Kohama*'s example of Figs. 11A-11D fails to teach that any part of the IC chip substrate is welded.

*Kohama* further fails to teach that a circuit is welded onto the surface of a fabric, in contrast to the applicant's claimed structure. *Kohama* teaches that an IC chip 1 and coils 2 are embedded. See e.g. *Kohama* Figs. 2, 9 and 11B. In *Kohama*'s example of Figs. 11A-11D, *Kohama* teaches but a first intermediate 21 with embedded coil 21 therein, and second intermediate 22 with embedded IC chip therein. See also *Kohama* Figs. 12A-12D.

Further, after the coils and IC chip are embedded, *Kohama* teaches using an ultrasonic vibrator – but only to connect output terminals 1a and end portions of the coil 2. See e.g. *Kohama* column 13, line 61 – column 14, line 4 (and column 15, lines 3-14 with respect to *Kohama*'s Figs. 12A-12D). As noted, *Kohama* fails to teach, among other things, that any part of the IC chip – substrate or otherwise – is welded.

Thus, *Kohama*'s fails to teach that any part of the IC chip substrate is welded. Instead, *Kohama* teaches embedding the IC chip and creating an IC module. Each of these teachings is also in contrast to the applicants' claim 1.

Notably also, *Kohama* teaches additional steps to finally make the contactless card – e.g. telephone cards and drivers' licenses – which is the ultimate goal of *Kohama*. These steps

include impregnating the fabric sections (e.g. 12 and 13, Fig. 10) with resin. See e.g. *Kohama* column 16, lines 14-18. *Kohama* also fails to teach that the cards or licenses thereafter are acted upon.

Accordingly, *Kohama* fails to teach, and in fact in some aspects teaches away from, the applicants' claim 1. At least dependent claims 3-6, 9, 10-14 are in condition for allowance for at least the same reasons.

The applicants further submit that new claim 27 is in condition for allowance for at least the same reasons.

With respect to independent claim 26, *Lewis*, *Akram*, and/or *Kohama* fail to teach – or teach aspects away from – a covering welded onto a fabric surface over a flex circuit and at least one electronic component by ultrasonic welding or radio frequency processes, wherein the flex circuit is in pressed engagement with the fabric and the covering (as discussed in detail above).

#### The *Bennion* Reference

The further cited *Bennion* does not add to *Lewis*, *Akram* or *Kohama* in order to form a rejection of the applicants' claim 10.

The applicants respectfully submit that the fact that the Examiner has cited *Bennion* for the alleged teaching aspects of a covering also is an indication that the Examiner has taken the applicants' claims and the cited references in isolation, rather than consideration of the applicants' claims as a whole, and the references in their entirety.

The applicants claim in pertinent part that the flexible circuit on the flexible **substrate** is welded onto the fabric by ultrasonic welding or radio frequency processes.

In sharp contrast, *Bennion* fails to teach that circuit board 10 or flexible substrate 11 are welded when *Bennion*'s display is attached to, for example, a shirt.

Instead, according to *Bennion*, "[t]he display and shirt are placed in a heat transfer press, so that the **adhesive melts** and bonds the display to the shirt". See *Bennion* at column 6, lines 50-52, with emphasis added.

The applicants submit that the applicant's claimed flexible circuit on a flexible substrate which is welded onto a fabric is structurally distinguishable from the circuit board and flexible substrate which are attached to a shirt by an adhesive which is melted, the latter structure as taught by *Bennion*.

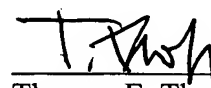
Accordingly, for at least the foregoing reasons, the applicants submit that claims 1, 3-6, 9, 10-14, 26, and new independent claim 28 (in addition to many dependent claims which are currently "withdrawn") are in condition for allowance.

### CONCLUSION

Each of the Examiner's rejections has been addressed or traversed. It is respectfully submitted that the application is in condition for allowance. Early and favorable action is respectfully requested.

If for any reason this Response is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please telephone the undersigned or his associates, collect in Waltham, Massachusetts at (781) 890-5678.

Respectfully submitted,

  
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